STUDY GUIDE FOR GEOGRAPHICAL READINESS

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STUDY GUIDE FOR GEOGRAPHICAL READINESS

The Study Guide for Geographical Readiness is designed to provide experiential readiness activities in geography for visually handicapped children. Because of limited opportunities for observing the environment in which they live, visually handicapped children lack geographical concepts they need to understand their immediate environment as well as the broader environment of the world around them. Without this understanding, which can be gained only through direct experience in the environment, they are not prepared for studies in geography and social studies, or for the more abstract processes of map study and globe study to which they are introduced in the early primary grades. This study guide provides visually handicapped students opportunities to interact directly with geographic features in their environment and to gain knowledge of configuration, physical characteristics, size, and relationship with other geographical features. Specifically, the lessons are designed to provide students with a variety of experiences in the natural environment which will build the background of knowledge needed to understand concepts presented at a later time on maps and globes.

Organization of the Study Guide

The Study Guide consists of nine individual lessons. As the title indicates, these lessons are to be used as guidelines only. They can, and should, be adapted and modified to meet the specific needs of children in a particular educational setting or geographical area. If the specific geographic feature described in a lesson is not located in the region in which the lesson is being used, a similar feature may be substituted, but the general format and activities in the lesson may be maintained as guidelines. For example, if there are no mountians or hills in the region in which the lessons dealing with these features are to be used, the lesson activities can be adapted and used effectively on a sloping or slightly raised area.

Each lesson contains a statement of its purposes, a listing of the geographical concepts introduced, a list of materials needed, descriptions of appropriate readiness activities, and suggested evaluation procedures. It should be noted that, since this study guide is to be used at the readiness level, concepts and vocabulary related to the specific geographic features are presented only on an

introductory basis. Teachers who feel that their students require more instensive study of these concepts are encouraged to consult current geography texts for further detail.

The study guide is organized as follows:

Lesson 1	Introductory, provides an overall view of geographic features which are presented later in more detail.
Lesson 2-3	Water areas on the surface of the earth: water areas on continents and water areas surrounding continents.
Lesson 4-7	Land areas on the surface of the earth: land areas near water, land areas surrounded by water, landform patterns of the continents.
Lesson 8	The shape of the earth.
Lesson 9	The earth as a home for all life.

These lessons are designed in such a way that not only are the specific features introduced and described but also their relationships to each other, as well as to the overall structure of the earth's surface, are emphasized.

The appendixes include a glossary of geographic terms, a list of references, and lists of equipment, music, and poetry which may be used with the individual lessons. The glossary contains definitions of geographic features included in the lessons and, also, definitions of other terms related to geographic features which are not included, but which are similar to these features. Teachers may use the glossary to select terms associated with the geographic features found in their area, when those in the lesson are not appropriate. The reference list contains current social science curricular materials which can be used to supplement information provided in the lessons of the study guide. Specific titles and their sources are included in the listings of equipment, music and poetry.

Using the Study Guide

The Study Guide for Geographic Readiness is intended primarily to provide introductory lessons to the Landform Models produced by the American Printing House for the Blind. The geographic features included in the study guide are based on those incorporated into the Landform Models. Therefore, these lessons in the study guide may be used to acquaint students with features

as they actually exist in the environment, prior to introducing them to the more abstract representations of the Landform Models. Use of the study guide should not be restricted to the Landform Models, however. (Since the geographic features in the study guide and the Landform Models were indentified through the analysis of elementary geography textbooks, may be appropriately used as an introduction to most elementary geography programs.)

The following suggestions may be helpful to teachers for maximum efficiency study guide:

1. Provide necessary prerequisite experiences. Since the lessons are related specifically to geographical concepts, prerequisite skills are not included. However, teachers should provide training in tactual discrimination, size discrimination, and directionality for students deficient in these skills. Materials appropriate for the purpose of teaching these concepts are listed in the appendixes.

2. Plan a sequence for presenting the lessons which is appropriate to the specific group with which they are to be used. The individual lessons do not have to be taken in the sequence in which they are herein presented. It is preferable to use the introductory lesson first, but other lessons may be used in any order desired.

3. Schedule an appropriate amount of time for the lessons. The time requirement for each lesson will vary with individual students, and must be determined by the teacher. In most cases, an entire lesson cannot be completed in one day. The length of time spent on a particular activitiy will depend on the student's maturity, attention span and his ability to comprehend facts and ideas. For example, very young students cannot be expected to absorb large numbers of facts at any one time. Therefore, portions of the lesson in which facts are presented should be very short. Older, more mature stu-

dents will be able to attend to the presentation of facts for a longer period of time, and consequently more of the lesson can be presented to them in a shorter period of time. For these reasons, teachers should plan carefully to present only the amount of material she feels her students can assimilate in a given time span.

4. Study the lesson carefully before presenting it to students, and choose only the parts which are applicable to the particular situation in which it is to be used. It is not necessary to use the entire lesson or to use it exactly as it has been written. As stated earlier, if the geographic features in a specific lesson are not appropriate for the area in which the lesson is to be taught, a similar feature may be substituted and lessons can be adapted accordingly. Features which can be substituted are listed in the glossary. Materials and activities used in the lessons may likewise be varied to fit the needs of a specific group.

5. Use geography textbooks and other current materials to supplement the information presented in the study guide. The study guide contains only basic introductory information about specific geographical features. In order to meet the needs of individual children who might need more information about particular concepts, it is advisable for teachers to be familar with a number of supplementary sources and references.

6. When a field trip is to be taken with the students, prior to the scheduled date the teacher should visit the location and study its important features. This preleminary visit will enable the teacher to prepare the lesson more carefully, and to be sure that all important features of the area are pointed out to the students.

Evaluation

Evaluation should be informal. Sample questions and activities related to the concepts introduced are included in each lesson. Teachers may use these questions and activities in an oral discussion to determine whether students have gained a basic understanding of the concepts. They also include questions and activities of their own. The primary requirement for the inclusion of additional questions and activities is that they relate to the purposes of the lesson and to the concepts introduced.

Results of the evaluation should identify those students who have not grasped the concepts, and enable teachers to provide appropriate remedial procedures. These procedures may consist of the repetition of specific activities in the lessons, or they may consist of new activities related to the same concept. Again, the major criterion for the evaluation procedures is that they be informal and that all activities and questions be related to the purposes of the lesson and to the concepts introduced.

Lesson 1 – The Surface of the Earth

A. Purpose

The purposes of this lesson are to introduce the concept that the surface of the earth is made up of land and water, and to describe and demonstrate these features to visually handicapped children.

B. Concepts Introduced

1. The surface of the earth is composed of land and water.
2. The earth's largest land areas are called continents.
3. The earth's largest water areas are called oceans.
4. Most of the earth's surface is covered by water.
5. Some land areas on the earth's surface are high and some are low.
6. Some water areas are on continents and some surround continents.

C. Materials

1. Large floor pedestal relief globe
2. Table model relief globe

3. Large buckets

4. Small pails and shovels

D. Readiness Activities

1. Learning about Land Areas

a. Use the large floor pedestal relief globe. Let each child examine the globe, show him the land areas and explaining how these can be indentified tactually. (If the APH globe is used, it may be neccessary to briefly explain the latitude and longitude lines.) Show each child where the continents are located on the globe. Allow time for students to practice finding these areas.

b. Use the large floor pedestal relief globe again. Ask the students to find one of the continents and notice that some land areas are high (raised) and some land areas are low (smooth). Explain that these areas have special names and that more information will be given about them later.

c. If the students locate land areas such as islands during this lesson, a brief explanation of the land area may be given or instruction to study lesson 5, Land Areas Surrounded by Water: Islands.

2. Learning about Water Areas

a. To be sure that students understand the concepts of water (liquid) and land (solid) take them outside and let them fill buckets with water. Explain that water is usually liquid and that a liquid always takes the shape of its container. Let them put their hands in the bucket and reach to the bottom to prove this concept. Use the same procedure to show that dirt is solid. By letting students examine ice cubes, demonstrate that water if frozen is a solid.

b. Use the large floor pedestal relief globe. Explain that some water

areas are on the continents and some are not. Further explain that water areas on continents are called streams (rivers) or lakes (ponds) and those surrounding continents are called oceans or seas. Let each student practice finding water areas on the globe.

3. Comparing Land and Water Areas

   a. Use the table model relief globe. Let the students find both land and water areas. Point out that more of the earth's surface is covered by water than by land (71% water and 29% land).

   b. Let the students make a "globe." Use a rubber ball, preferably the size of a basketball. Help the students cut out the shapes of the continents from material with a texture which is different from the ball. Glue the shapes on the ball. Finally, have them glue on papier-mache or other material which will give a raised surface to represent mountains.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson and to evaluate the students' grasp of the concepts presented. Each student should be able to demonstrate an understanding of each concept presented by preforming the following activities or answering the following questions correctly:

1. What are the earth's largest land areas called? (continents)
2. Find a continent on the globe (large floor pedestal relief globe) and put your finger on it.
3. What are the earth's largest water areas called? (oceans)
4. Find an ocean on the globe (large floor pedestal relief globe) and put your finger on it.
5. Is most of the earth's surface covered by land or water? (water)
6. Tell what the land areas are like. (Some are high and some are low)

7. Find a high land area on the globe (large floor pedestal relief globe) and put your finger on it. Find a low land area and put your finger on it.
8. Where are the water areas on the earth located? (Some are on continents and some are not)
9. Find a water area which surrounds a continent on the globe (large floor pedestal relief globe) and put your finger on it.
10. Find a water area which is on a continent on the globe (large floor pedestal relief globe) and put your finger on it.

Lesson 2 – Water Areas on Continents: Streams (Rivers) and Lakes (Ponds)

A. Purpose

The purposes of this lesson are to introduce concepts and vocabulary related to streams (rivers) and lakes (ponds), and to suggest activities which demonstrate these concepts to visually handicapped children.

B. Geographical Concepts Introduced

1. Some water areas are on continents and some are not.
2. The two kinds of water areas on continents are streams (rivers) and lakes (ponds).
3. Streams are bodies of naturally flowing water.
4. Streams are distinguished by use of different names: very large streams are called rivers, smaller streams are called springs, creeks, etc.
5. A lake is a body of water surrounded by land.
6. Lakes are distinguished by use of different names: a small lake is called a pond.

C. Materials

1. Outdoor faucet
2. Water hose
3. Play puddle (See list of resources for description.)
4. Sandtable
5. Mixing bowl

6. Roasting pan
7. Large floor pedestal relief globe
8. Dissected relief map
9. Landform Models I and V - American Printing House for the Blind
10. Containers of different sizes

D. Readiness Activities

1. Learning about Streams (Rivers)

a. Explain that there are many bodies of water on continents, and that they are distinguished one from the other by use of different names. Explain that bodies of naturally flowing water on continents are called streams. If they are large streams, they are called rivers. If they are smaller, they are called springs, creeks, among other names. Emphasize the fact that streams are bodies of moving water. Some of the water is due to rainfall, some of it is due to melting snow and some of it is from underground water coming up through the surface of the earth.

b. Let the students examine an outdoor faucet, turn it on and listen to the water flow. Compare this sound to that made by the falling of rain.

c. Explain briefly, that water sometimes flows under the ground in a stream and comes up through an opening in the earth, and that the stream above ground is called a spring. Then, attach a hose to the faucet, turn on the water, and ask the students to follow the hose as the water flows through it, and observe the water flowing from the end of the hose. Compare this to flowing of the water underground and its emergence from the ground as a spring.

d. Let the students make a hill or mountain from the dirt in the sand-

table. Pour a little water (not enough to wash dirt away too much) on the mountain. Let the water run down the pile of dirt to demonstrate how furrows are made in mountains by rushing water. If the dirt washes away, repeat the demonstration using clay.

e. If possible, visit a stream and let students walk along the banks. Encourage them to put their hands and feet in the water, and feel the water moving. Emphasize the fact that water in a stream is flowing, or moving, water. Let the students dip some of the water up in their cupped hands and feel its coolness. Let the students collect water, rocks, dirt, and plants growing around the stream and carry them back to the classroom for further examination.

f. Use the Play Puddle. Ask students to examine it as the high and low places are pointed out to them. Pour water on the high areas and note how the water runs down and fills up the low surfaces.

g. Explain briefly that some large streams are called rivers. Point out that some rivers are very long and very large and that boats can travel on them. Also point out that some rivers have bridges built over them so that people can cross them.

h. Visit a river if one is nearby. As the students near the river, explain that streams flow together and form a large stream called a river. Take the students to a bridge which crosses a river. Let them walk across stopping halfway across to listen to the sound made by the water moving down the riverbed. After the students have crossed the bridge, have them walk along the riverbank. Let them kneel and place their hands in the water. As they do this, emphasize that their legs and feet are on land, but their hands are in water. Explain that there is soil on the bottom of the river and that this soil forms the

riverbed. Tell them that land (riverbank) is on both sides of the river. To illustrate the fact that there is land on the bottom of the river, if there is a dried-up riverbed in the area, let the students walk across it. As the students walk across the riverbed point out that rivers are large streams.

i. Upon returning to the classroom, use Landform V, a dissected relief map, or a large floor pedestal relief globe to illustrate rivers and streams. Compare the river which was just visited, with its representation on the landform, map or globe.

2. Learning about Lakes (Ponds)

a. Begin a discussion of lakes and ponds by briefly describing these bodies of water to the students, and explaining how lakes and ponds are formed. Give the students the following facts in simple terms:

1) Lakes and ponds are two bodies of water on continents. They are very much alike except that lakes are larger than ponds.

2) Lakes and ponds are formed from water collecting in low places on the earth's surface. This water comes from rain, melting snow and underground water which comes to the surface.

3) Water in lakes and ponds moves, but usually does not flow as the water in streams (rivers) does. When there are no streams flowing into lakes or ponds to make the water move, movement may be caused by the wind.

4) Lakes and ponds may be used to provide the water for cities and towns. Water is carried from large containers called reservoirs to the cities through pipes.

5) Lakes and ponds can also be used for recreation. People often go boating and swimming on lakes and ponds.

b. To illustrate the differences in the size of lakes and ponds, put a small mixing bowl and a larger bowl or a roasting pan in the sandtable, put sand around them and fill them with water. Let the students compare the sizes and the amounts of water in each container, and explain that this illustrates the difference in the size of a lake and a pond. Dirt can be spread over the entire bottom of the sandtable to illustrate the fact that there is dirt even under lakes and ponds.

c. Take the students to a lake, if there is one in the area. Let them walk around it, or as far around it as possible. As they walk, call their attention to the terrian, comparing it to the land around streams or other water areas previously visited. Let the students collet water, rocks, earth, or plants of interest to take back to the classroom for further examination.

d. Take the students for a boat ride. As they ride, call attention to the rocking motion of the boat and explain that this is caused by the movement of the water. Tell them that this movement is called waves.

e. As the boat ride continues, explain to the students that there are huge bodies of water called oceans which are much larger than lakes. Explain that it takes much longer to cross an ocean and it must be done in large ships, or possibly airplanes.

f. When the students return to the classroom, show them how to locate a lake on Landform I. Then let them locate some lake areas (such as the Great Lakes) on the globe or the dissected relief map. Explain that not all lake areas are large enough to be shown on the globe.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the child's grasp of the concepts presented. Each child should be able to demonstrate an understanding of each concept presented by responding to the following questions correctly:

1. Are all water areas on the earth on continents? (No)
2. Are some water areas on the earth on continents? (Yes)
3. Name two kinds of water areas on continents. [streams (rivers), lakes (ponds)]
4. What is a stream? (A body of naturally flowing water)
5. What other names can a stream have? (river, spring, creek, etc.)
6. From where does the water in streams come? (rain, melting snow, underground water)
7. What is a lake? (A body of water surrounded by land, formed by water collecting in low places)
8. What other name can a lake have? (pond)
9. From where does the water in lakes come? (rain, melting snow, and underground water)
10. Find a lake (pond) on Landform I.
11. Find a stream (river) on Landform V.
12. Find some streams (rivers) and lakes (ponds) on the dissected relief map or the globe.

Lesson 3 – Water Areas Surrounding Continents: Oceans and Seas

A. Purpose

The purposes of this lesson are to introduce concepts and vocabulary related to oceans and seas, and to suggest activities which demonstrate these concepts to visually handicapped children.

B. Geographical Concepts Introduced

1. Some water areas are on continents and some are not. The latter surround continents.
2. Two kinds of water areas which surround continents are oceans and seas.
3. Oceans and seas are very much alike, but seas are smaller than oceans.

C. Materials

1. Landform Model I - American Printing House for the Blind

2. Large floor pedestal relief globe
3. Sandtable
4. Hose
5. Several containers of different sizes

D. Readiness Activities

1. Reviewing Concepts about Water Areas

a. Reexamine the large floor pedestal relief globe and point out the huge smooth areas representing oceans and seas on the earth's surface. Remind the students of the water areas they found in Lesson 1. If APH globe is used, explain the latitude and longitude lines to students. Discuss facts related to the size of oceans and seas and explain that most of the earth's surface is covered by water.

b. Review previous trips taken to various bodies of water and compare those bodies of water with oceans and seas. Point out that smaller parts of the oceans are called seas, but seas are still larger than the other bodies of water studied. Emphasize the fact that oceans and seas are bodies of water surrounding and not on continents.

c. Ask the students to find and name some bodies of water on the globe, or the dissected relief map, which are on continents. Then ask them to find and name some bodies of water not on continents.

2. Learning about Oceans and Seas

a. Take five containers of different sizes, have the students fill them with dirt, and place the containers across the length of the sandtable which has been filled with water. Explain that the water in the sandtable represents the huge oceans and seas on the earth and the containers of dirt represent the few areas of land. Let the students place small plants and rocks in the water to represent those found near the

water areas they have visited.

b. If possible, take a trip to the ocean. Using Landform I, illustrate the concept of an ocean as the children walk along the beach. Let the students walk close to the ocean and feel the water rushing up over their feet. Encourage them to listen to the noise made by the waves. Take a ride on a boat. Call attention to the motion of the waves and if students have visited a lake, compare it to the motion of the waves on the lake. Also, point out that the water in the ocean tastes salty (let the students taste it), and that generally water in streams and lakes is not salty. Let the students collect shells, sand, seaweed, etc. from the beach along the ocean to take back to the classroom for further examination. These items can be compared with the items collected from other water areas previously visited.

c. Using the things collected from the different water areas, let the students make an aquarium in the classroom.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the child's grasp of the concepts presented. Each child should be able to demonstrate an understanding of each concept presented by preforming the following activities or answering the following questions correctly:

1. Name two places on the surface of the earth where water areas are found. (on continents and surrounding continents)
2. Name two kinds of water areas surrounding continents. (oceans and seas)
3. What is an ocean? (a large body of water surrounding a continent)
4. Find an ocean on the large floor pedestal relief globe.
5. Find the ocean on Landform I.
6. What is a sea? (a large body of water very much like an ocean, except that it is smaller)

7. Find a sea on the large floor pedestal relief globe.

Lesson 4 – Land Areas near Water: Shorelines

A. Purpose

The purpose of this lesson is to introduce concepts and vocabulary related to land areas near water, shorelines, and to suggest activities which demonstrate these concepts to visually handicapped students.

B. Geographical Concepts Introduced

1. Land areas near the edge of water areas are called shorelines.
2. Shorelines which are near the edge of specific kinds of water areas can be distinguished by use of different names.
3. Land near the edge of a stream is usually called a shore, but if the stream is called a river, the land is called a river bank.
4. Land near the edge of a lake is usually called a lake shore.
5. Land near the edge of an ocean is sometimes called a beach.
6. Land near the edge of a sea is usually called a sea coast.

C. Materials

1. Large floor pedestal relief glob
2. Landform Model I - American Printing House for the Blind
3. Cardboard - relatively large piece
4. Modeling clay
5. Dissected relief map
6. Cord

D. Readiness Activities

1. Reviewing Concepts about Shorelines

a. Review the discussion of water areas presented in Lesson 1. Explain that the land near the edge of these water areas is called a shoreline, but that land near the edge of each of the different water areas is

often distinguished by use of a different name. Compare the concept of two names for a single item to the fact that people have two names - a first name and a last name - and furthermore that people sometimes have other names, such as nicknames, by which they are known. Discuss the names of the shorelines near different water areas: river banks, lakeshore, beach, sea coast, etc.

b. Review the experience of making a lake or river in the sandtable, or let the students actually make another one. Then, show them the shoreline.

2. Learning about Shorelines

a. Use the large floor pedestal relief globe or dissected relief map to demonstrate where shorelines are located on the surface of the earth. Take a piece of cord and glue it along the edges of a lake, an ocean, or a major river. Let the students find these areas and explain that shorelines would be found in these areas. Ask them to name the particular kind of shoreline as they find it.

b. Using Landform I, let the students find a shoreline.

c. The students may also make their own map to illustrate the areas where shorelines would be located. Use a relatively large piece of cardboard and make the land areas from molding clay. Indentions representing rivers can be made in the clay with sticks. Dirt can be placed along the river to represent a riverbank, and sand can be placed along the seashore to represent a beach.

d. Revisit a water area, if possible, and this time concentrate on the features of the shoreline. Using Landform I, let the students compare the landform to the shoreline on which they are walking. Discuss the specific name of the shoreline visited and ask the students to note

specific characteristics which are different from those of other shorelines.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the child's grasp of the concepts presented. Each child should be able to demonstrate an understanding of each concept presented by preforming the following activities or answering the following questions correctly:

1. What is a land area near the edge of a body of water called? (shoreline)
2. What are shorelines near the edge of streams called? (shore)
3. What are shorelines near the edge of rivers called? (riverbank)
4. What are shorelines near the edge of lakes called? (lakeshore)
5. What are shorelines near the edge of oceans sometimes called? (beaches)
6. What are shorelines near the edge of seas called? (seacoast or seashore)
7. Find the following shorelines on the globe, dissected, relief map, or Landform I:
   a. riverbank
   b. lakeshore
   c. beach
   d. seacoast

Lesson 5 – Land Areas Surrounded by Water: Islands

A. Purpose

The purpose of this lesson is to introduce concepts and vocabulary related to islands, and to suggest activities which demonstrate these concepts to visually handicapped students.

B. Geographical Concepts Introduced

1. Islands are land areas completely surrounded by water.
2. Some islands are very large and some are very small.
3. Some large islands are the tops of very high mountains rising from the bottom of the ocean.

4. Some small islands are the tops of lower mountains rising from the bottom of the ocean.
5. Some islands are formed in streams.
6. Some islands are in groups and others are not.

C. Materials

1. Landform Model II - American Printing House for the Blind
2. Sandtable
3. Large and small bowls or pans
4. Large ball
5. Clay or putty
6. Large floor pedestal relief globe.

D. Readiness Activities

1. Reviewing Concepts about Land Areas

a. Briefly review concepts and vocabulary related to other land areas the students discussed in Lesson 1: Mountains, hills, valleys, canyons, plains, plateaus.

b. Let the students locate some of these land areas on the large floor pedestal relief globe or on the Landform Models they have studied.

c. Explain that, although some of these land areas have water on them, none of them are completely surrounded by water. Then briefly describe an island, and further explain that this will be the next type of land area to be studied.

2. Learning about Islands

a. Explain that islands are land areas completely surrounded by water. Point out that some islands are small, some are large, some are in groups, and some have no other islands around them.

b. Use Landform I to illustrate the concept of an island. Point out that

some islands are large enough to have lakes and rivers on them (similar to the one on the landform).

Then, show the students where some islands are located on the large floor pedestal relief globe. Have the students locate various islands on the globe, starting with the larger islands, choosing some located on different parts of the globe. This will enable the students to have an opportunity to explore the entire globe and, also, understand that islands can be located anywhere on the surface of the earth. Some large islands which are appropriate for this purpose are: Greenland, Iceland, Madagascar, and New Zealand. Do not name the islands for students at this level. After the students have located some of the larger islands, show them where some smaller islands and some island chains (groups) are located. Some islands appropriate for this purpose are the Aleutian Islands, Hawaiian Islands, Azores, Canary Islands, Bermuda, Cuba, Jamaica, and the many small islands in the South Pacific. Again, do not use the names of the islands, but let the students locate the islands on the appropriate parts of the globe.

c. Use a large container, an aquarium, or a sandtable filled with water. Explain to the students that this will represent the ocean. Show them that the bottom of the container will be the floor of the ocean. Then, make a mountain from clay, putty, or some material which will not dissolve, and put it in the container. Make it high enough so that the top will be above the water. Let the students examine the mountain to see how some islands are formed. Make mountains of different heights, some rough on top and some smooth, to illustrate how the terrain of islands can be different. Let the students participate as much as possible in making the island. If there is a container

which is large enough, make several islands to illustrate an island group or chain.

d. If the students are to the appropriate level, a more detailed explanation of how islands are formed may be given. Some large islands are formed of coral or through volcanic activity. Usually large islands are the tops of high mountains under the ocean and small islands are the tops of low mountains. However, the size of the island is also related to the depth of the ocean floor, as well as the actual size of the mountain underneath. If it is desirable to illustrate other ways in which islands are formed, the teacher should consult other geography texts.

e. Let the students make a globe to demonstrate islands. Cut out shapes of the earth's land areas and glue them on the ball. Then using small pieces of cardboard, or an appropriate substitute material, glue the pieces to the areas on the ball-globe representing water. These would be the areas on which no land area shapes had been glued previously. Be sure the students place some islands in groups and some in isolated areas and that some of the islands are large and some are small. If the students are at an appropriate level, they might want to attempt to place the islands on their globe where they appear on the large floor pedestal globe. They may also make a map similar to the one made to demonstrate shorelines in Lesson 4 this time including the islands.

f. If there is an island in the vicinity, take the students to visit it. Using Landform I, illustrate certain parts of the island as the children explore the island. Comment on the fact that (because an island is completely surrounded by water) people sometimes must cross a

bridge to get to an island, or sometimes use a boat. When the island is reached, let the students walk along the shoreline, noticing the terrain, the water as it touches the land, etc. Let them collect rocks, shells, plants, dirt, etc., to take back to the classroom to compare with other things they have collected previously.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the child's grasp of the concepts presented. Each child should be able to demonstrate an understanding of each concept presented by preforming the following activities or answering the following questions:

1. What are land areas completely surrounded by water called? (islands)
2. How are most islands formed? (from mountains rising from the bottom of the sea)
3. Are all islands the same size? (No. Some are very large and some are small.)
4. What are several islands fairly close together called? (group or chain)
5. Find the island on Landform I.
6. Find one large island on the large floor pedestal relief globe.
7. Find a small island, or a group of small islands on the large floor pedestal relief globe.

Lesson 6 – Landform Patterns of the Continents: Mountains and Hills, Valleys and Canyons

A. Purpose

The purposes of this lesson are to introduce concepts and vocabulary related to mountains and hills, valleys and canyons, and to suggest activities which are appropriate for demonstrating the concepts to visually handicapped children.

B. Geographical Concepts Introduced

1. Raised areas on the surface of the earth are called mountains and hills.
2. The highest raised areas are called mountains and the lower raised areas are called hills.
3. A long depression in the earth's surface is called a valley.
4. A deep valley with steep sides is called a canyon.

C. Materials

1. Large floor pedestal relief globe
2. Dissected Relief Map
3. Slide
4. Pails and small shovels
5. Sandtable
6. Large ball
7. Cardboard
8. Paper
9. Landform Model II - American Printing House for the Blind.

D. Readiness Activities

1. Introducing Concepts Related to Hills and Mountains, Valleys and Canyons

Take the students to a hill, if there is one in the vicinity. If there are no hills nearby, a relatively high slopping area would be appropriate for this activity. Before taking the trip, review some of the concepts about land areas which have already been discussed: raised areas on the surface of the earth are called mountains and hills, mountains are the highest raised areas, and hills are lower raised areas. Explain to the students that they will now learn more about these elevated land areas.

a. As you plan for the trip discuss the kinds of shoes best for climbing (rubber sole shoes) and clothes appropriate for outdoors. Also, ask the students to take pails and shovels so that they can collect earth to bring back for futher examination.

b. Take Landform II so that students can compare the hill visited with those represented on the landform.

c. When you reach the hill, let the students climb up as far as they can go. Show them how to lean forward slightly as they climb. Point out different aspects of the terrain over which they are walking, i.e.,

roughness, smoothness, whether or not plants and trees are growing, whether or not there is a path to follow, etc. Ask the students to compare this terrain with that around the school or other places with which they are familiar.

d. When you reach a good place to stop, let the students fill their pails with some earth. Point out rocks in the soil if there are any. Explain that when they return they can compare this earth with other kinds of earth at school.

e. When the students walk back down the hill, (if the hill is very steep,) explain that they must lean backward slightly to keep from falling. Mention again the difference between hills and mountains, commenting that mountains are higher than hills.

f. When the students reach the bottom of the hill, and walk a short distance on the flatter surface of the ground explain that the ground in a valley may be flat like this. Explain, also that a canyon would have some flat ground, but the sides of the canyon are steeper than the valleys. Relate the flatness of the ground to the ease of walking on it.

g. When the students return to the classroom, let them put the earth they have collected into the sandtable. If they have collected earth from other sources, have them compare it with the earth from the hill, noting any differences. Then, let them build mountains and hills having valleys or canyons between them.

2. Learning the Names and Locations of Hills and Mountains, Valleys, and Canyons

a. First use a large floor pedestal relief globe or a dissected relief map. Show each student the location of raised areas. Remind them that the highest raised areas are called mountains, and the lower raised areas are called hills. Discuss the trip to the hill,

and recall that it was possible to climb the hill. Tell them that it is possible for some people to climb mountains, even though mountains are very high and many times difficult to climb.

b. Using Landform II, let the students locate hills and mountains, simultaneously recalling the hill they visited. Explain that the landform is like a smaller map, or large floor pedestal relief globe, but shows only geographical features of interest, such as the hills and mountains on this one.

c. Let the students examine Landform II again. This time show them the low areas between the mountains and hills. The large floor pedestal relief globe or dissectable relief map can likewise be used if these features are discernible on them. Explain that these low areas are called valleys and canyons, which in simple terms is: a valley is a long depression (low area) on the earth's surface, and a canyon is a deep valley with steep sides.

d. Using a large ball, let the students make their own globe. Cut out the shapes of the continents from heavy paper, and paste these shapes on a globe. Let the students put mountains and hills on the globe, and make valleys and canyons which can be discriminated tactually. By using papier-mache for the mountains and hills, the texture of the surface of the ball can easily discriminated from the papier-mache. Let the students make as much of the globe as possible without help from the teacher.

e. The students may also make a flat relief map using heavy cardboard and clay. The clay being used to make mountains and hills. Different textures can be used for the flat areas representing valleys and canyons. Differences in texture can be achieved by using different kinds

of paper, or by gluing sand or some other rough material to the paper.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the student's grasp of the concepts presented. Each student should be able to demonstrate an understanding of each concept introduced by preforming the following activities or answering the following questions correctly:

1. Name two kinds of raised land areas found on the earth. (mountains and hills)
2. What are the highest raised land areas called? (mountains)
3. Find a mountain on the globe. (make one in the sandtable)
4. What are lower raised land areas called? (hills)
5. Find a hill on the globe. Find one on the landform.
6. Name two kinds of low land areas. (valleys and canyons)
7. Describe a valley. (A long depression (low area) on the earth's surface.)
8. Find (or make) a valley in the sandtable.
9. Find a valley on the landform.
10. Describe a canyon. (deep valley with steep sides)
11. Find (or make) a canyon in the sandtable.
12. Find a canyon on the landform.

Lesson 7 – Landform Patterns of the Continents: Plains and Plateaus

A. Purpose

The purposes of this lesson are to introduce concepts and vocabulary related to plains and plateaus, and to suggest activities which are appropriate for demonstrating the concepts to visually handicapped children.

B. Geographical Concepts Introduced

1. Large, rather flat land surfaces, generally lying near sea level are called plains.
2. Raised areas of flat or level land are called plateaus.

C. Materials

1. Sandtable

2. Large piece of cardboard

3. Landform Models II and II - American Printing House for the Blind

D. Readiness Activities

1. Introducing Concepts Related to Plains and Plateaus

a. Use the sandtable to demonstrate the concepts of plains. Let the students flatten out all the sand in the table. Explain that this is the way plains look, and that grass and some crops can grow on plains.

b. If there are plains nearby, take the children to visit one. Using Landform III, show the children where the plains are located. Point out the flatness of the land. When the plain is reached, let the students run or walk across it. Explain that plains are flat and that sometimes plains have crops or grass growing on them. Mention briefly, that plains with grass growing on them are called prairies and that because there is plenty of grass to eat, cattle and other animals are raised on prairies. Explain that, in America, much of our food is grown on plains, but that in some countries the plains are very dry and hot (deserts) and nothing can be grown on them.

c. Explain in simple terms that there are different kinds of plateaus: (1) a raised flat area between two mountains (intermountain plateau) (2) a raised flat area at the foothills (base) of a mountain (piedmont plateau), and (3) a large area of raised flat land (continental plateau). Let the students examine Landform III again, this time locating a plateau. Then, help the students to build different kinds of plateaus in the sandtable.

d. If there are plains and plateaus in the area, take the students to visit

them and review the concepts just presented.

2. Learning Names and Locations of Plains and Plateaus

   a. Use the large floor pedestal relief globe or a dissectable relief map. Show the students where the plains are located. Review the fact that plains are large areas of flat land situated at sea level. Let the students examine the areas on the globe at the same level as the sea, and compare these to mountains and hills which are higher than the level of the sea.

   b. Using Landform III, let the students find plains. Remind the students of their visit to the field, and help them to compare the field to the plains of the landform.

   c. Show the students areas on the globe or the dissected relief map where plateaus are located, the plateaus may not be discriminable. Explain that plateaus are also flat but that they are more elevated (raised) than plains.

   d. Let the students examine Landform III again in order to find the plateaus. Explain the shape of the plateaus which might not be discernible on the map or globe.

   e. Using both Landforms II and III, compare plains and plateaus to valleys and canyons.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the student's grasp of the concepts presented. Each student should be able to demonstrate an adequate understanding of each concept introduced by preforming the following activities and answering the following questions correctly:

1. Name two kinds of flat areas found on the earth. (plains, plateaus)
2. What are large flat areas generally lying near sea level on the surface of the earth called? (plains)
3. Find a plains area on the globe or the dissectable map.
4. Find a plains area on Landform III.

5. What are flat areas which are raised called? (plateaus)
6. Find an area on the globe or dissected map where plateaus might be found.
7. Find a plateau on Landform III.
8. How can you tell the difference between plains areas and valleys (or canyons)? [valleys are depressed (lower) or plateaus are elevated (higher)]
9. How can you tell the difference between plateaus and valleys (or canyons)? (plateaus are raised areas, valleys are depressed areas)

Lesson 8 – The Shape of the Earth

A. Purpose

The purposes of this lesson are to introduce the concepts that the shape of the earth is round, that the North Pole and the South Pole are located on the earth, and that the cardinal directions North and South can be learned from the globe, the classroom, and the outdoors.

B. Geographical Concepts Introduced

1. The shape of the earth is round.
2. The North Pole, South Pole, and Equator are located on the earth.
3. The cardinal directions: North and South can be learned from the globe, the classroom, and the outdoors.

C. Materials

1. Rubber balls, preferably, a size which can be held in a child's two hands
2. Large floor pedestal relief globe
3. Table model relief globe
4. Globe mileage scale

D. Readiness Activities

1. Learning about the Shape of the Earth
   a. Discuss all the areas of the earth which the children have previously studied. Then, explain to them that they are going to learn about the shape of the earth containing all the various types of areas. First,

using a rubber ball, which the child can hold in his two hands, demonstrate a round shape. Let each child examine the ball and as he does explain that the earth has a similar round shape. Discuss other items having a round shape, such as marbles, beads, etc. Let the students roll some of these items to illustrate that round things roll easily. Then, let them try to roll something that isn't round, such as a block, to illustrate that it won't roll.

b. Next using a small table model relief globe, let each child discover that a globe is shaped like a ball. Explain that the earth is shaped like a globe.

c. Finally, explain that globes are shaped exactly like the earth, but that globes have been made small enough for people to examine and use in learning about the shape of the earth.

2. Learning about the North Pole, South Pole, and Equator

   a. Using a large floor pedestal globe, fasten an APH mileage scale securely around it at the equator. Let each child place both his hands on the northern most part of the globe, if necessary, place the child's hands in the correct place. As he places his hands, tell him that this is the North Pole. Then, show him how to move his hands along the sides of the globe toward the Equator. Explain to the students that his hands move farther and farther apart until they reach the Equator. Tell him to stop when he reaches the mileage scale and explain that this is the Equator. Then, let him continue moving his hands toward the South Pole. Explain that his hands begin to get closer together until they reach the southern most part of the globe and that this is the South Pole.

   b. Learn the correct use of the words "up" and "down." Devise many

opportunities for using these words correctly. Teach that "down" is the direction toward the center of the earth and "up" is the direction away from the center of the earth. When discussing activities related to these words, students may be led to make such statements as:

"We climbed up the hill."

"Rain falls down."

"To reach the top of the slide, we must go up."

The purpose of these activities is to avoid the use of "up" instead of "north" and "down" instead of "south" (Harris, 1967).

c. Repeat the activity just described and let the students tell when their hands are farthest apart (when they are touching the mileage scale at the Equator). Then let them tell when their hands are closest together (at the North Pole and at the South Pole).

3. Learning about Cardinal Directions: North and South

a. Use the small table model relief globe. Ask each child to find the North Pole and the South Pole on the globe.

b. In the classroom, teach the children where the north wall and the south wall are. Start in the corner so that the student will have walls on both sides of him. When he finds the north wall, he should realize that the direction doesn't change, that he is, in fact, turning, or changing direction.

c. After directions have been taught (and until the students have learn the directions without the use of referents) use a familiar object against each wall as a referent. Make "North" and "South" signs and attach them to the classroom walls. When the students have become familiar with the orientation, ask the students to face the "North

Wall" or the "South Wall."

d. Take the students outside. Show them some referent such as a door of the school, a turn in the sidewalk, etc. so that the student can find north in relation to the school. Then ask the students to lie face down on the grass with their heads pointing north. Explain that the head is pointing north and the feet are pointing south. Then, have the students stand up and explain that they are facing in the same direction their head was pointing when they were lying in the grass, therefore, they must be facing north.

e. Play a game similar to "Simon says." Use the instructions: "Simon says face north," etc.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the student's grasp of the concepts presented. Each student should be able to demonstrate an understanding of each concept presented by performing the following activities or answering the following questions correctly:

1. What is the shape of the earth? (round)
2. What toy did you examine which has the same shape as the earth? (ball)
3. What else did you examine which has the same shape as the earth? (globe)
4. Find the North Pole on this globe (small globe) and put your finger on it.
5. Find the South Pole on this globe (small globe) and put your finger on it.
6. Find the Equator on this globe (small globe) and put your finger on it.
7. Repeat exercises 4, 5, and 6 using the large floor pedestal relief globe.
8. Face the north wall in the classroom.
9. Face the south wall in the classroom.
10. Face the north when standing outside.
11. Face the south when standing outside.

Lesson 9 – The Earth as a Home for All Life

A. Purpose

The purpose of this lesson is to introduce the concept that all the things necessary for life are found on the earth: light and warmth, air, water, food.

B. Concepts Introduced

1. All things necessary for life are found on earth: light and warmth, air water, food.
2. Light and warmth are produced by the sun.
3. Air surrounds the earth.
4. Water is on the surface of the earth.
5. Food grows on the earth.

C. Materials

D. Readiness Activities

1. Learning that Light and Warmth Come from the Sun
   a. Introduce the following ideas to the students:
      1. All necessary for life are found on earth.
      2. These things come from different sources.
      3. Light and warmth come from the sun.
      4. The sun is a part of the solar system.
      5. The solar system is composed of the earth, eight other planets, and the sun.
      6. The sun provides light and warmth to all the planets.
      7. The planets get the different amounts of light and heat due to the difference in their distances from the sun.
      8. The earth receives the sufficient amount of heat and light from the sun to maintain life of its distance from the sun.
   b. To illustrate the fact that the earth receives light and warmth from the sun, take the students outside on a sunny day. First let them stand in the sun and feel its warmth. Then, let them stand in the

shade and notice that it is not as warm where the sun doesn't shine. Point out that the sun doesn't shine in some places because trees or buildings block the rays of the sun and consequently cause a shady area. Also, let each of the students walk in different directions so that the warmth of the sun falls on different parts of the body. Point out that the parts of the body on which the sun falls are warmer than other parts of the body.

2. Learning that the Air We Breathe Surrounds the Earth

   a. Continue to walk outside. Comment that everyone is constantly breathing. Explain that breathing means the intake and output of air. Explain in simple terms that air surrounds the earth and that we must have this air to breathe, and furthermore to maintain life.

   b. To illustrate that we breathe in different ways, let the children run fast for a few minutes and notice that they are breathing very rapidly. Futhermore, explain that air moves in different ways and that when air moves very fast it is called wind. Let the children stand in front of a fan and feel the fast moving air. Compare this to the movement of wind.

3. Learning That the Water We Drink Is Found on the Earth

   a. When the children are thirsty from running, give each child a drink of water. As they drink, explain that the water comes from the water areas of the earth such as those found on the globe. Explain briefly, that the water is purified before we drink it.

   b. Go back to the classroom and let the students find the water areas on the globe again.

4. Learning That the Food We Eat Is Produced on the Earth

   a. Take the students on a walk around the school or neighborhood and

let them examine the many plants growing along the way. Explain that much of our food comes from growing plants, but that some types of plants do not provide food.

b. Visit a vagetable garden or field where food crops are growing. Let the students examine the many different kinds of plants which do provide food. Visit other places where food is produced, such as orchards and dairies.

c. Let the students bring a plant to grow in the classroom. Explain that most food comes from plants growing on land areas of the earth, but that some food, such as fish, comes from water areas. Then, let the students practice finding land and water areas on the globe again.

E. Evaluation

Use the following questions, presented orally, as a review of the lesson, and to evaluate the student's grasp of the concepts presented. Each student should be able to demonstrate an understanding of each concept introduced by preforming the following activities or answering the following questions correctly:

1. What things are necessary for life? (light and warmth, air, water, food)
2. Where are the things which are necessary for life found? (on the earth)
3. How do we get light and warmth? (from the sun)
4. What do we need to breath? (air)
5. Where is the air we breathe found? (surrounding the earth)
6. Where do the things we eat grow? (on the surface of the earth)
7. Where, on the surface of the earth is this food found? (on the land and in the water)
8. Find one land area on the globe and put your finger on it.
9. Find one water area on the globe and put your finger on it.

GLOSSARY OF GEOGRAPHICAL TERMS

1.	Airport	A landing area where aircraft discharge and receive passengers, or refuel.
2.	Arid Land	Any dry area of the earth receiving very little rainfall, an arid land.
3.	Bank	A. The ground which slopes down to the water's edge of a stream or lake. B. Any abrupt slope of ground. C. An area of the sea bottom which is closer to the surface of the water than are its surroundings. Many such banks are famous for fishing.
4.	Basin	A sizable depression in the land surface.
5.	Bay	A body of water which fills an opening into a seacoast or lake shore, and may vary considerably in size.
6.	Bayou	A minor or secondary, stream in the lower Mississippi River basin.
7.	Beach	A wave-levelled stretch of sand or gravel bordering a body of water.
8.	Bluff	A high steep bank.
9.	Bog	Wet, spongy ground composed of decayed plants.
10.	Breakwater	A structure which protects a harbor or beach from the force of the waves.
11.	Bridge	A structure for supporting a road, railroad, a pathway over a body of water, a depression, or another roadway.
12.	Brook	A small stream.
13.	Butte	An isolated, steep-sided hill found in arid lands; smaller than a mesa.
14.	Canal	An artificial waterway used to carry ships or barges, or soley to carry water.
15.	Canyon	A deep valley with steep sides which often slope irregularly down to the bottom, generally found in the arid plateaus of western United States.
16.	Cape	A piece of land extending into the sea beyond the rest of the shoreline.
17.	Causeway	A raised highway across wet or poorly drained ground.
18.	Cave	An enlarged opening in soil or rock, concealed underground or exposed as in a cliff face.
19.	Cavern	A large cave or a series of underground chambers.
20.	Channel	A. A narrow stretch of water connecting two larger areas of the sea. B. The middle, deeper, and more navigable part of a stream or other body of water. C. The bed of a stream.
21.	City	An important place of very dense settlement, larger than a town.
22.	Cliff	A high and extremely steep rock face, either inland or along the shoreline.

23.	Coast	The land area bordering the ocean or a sea.
24.	Coastal Plain	An extensive low-lying coastal area with a relatively flat surface.
25.	Continent	One of the seven largest land masses of the earth; North America, South America, Europe, Asia, Africa, Australia, Antartica.
26.	Continental Shelf	The shallow sea bottom which borders the continents.
27.	Cove	A small inlet.
28.	Crater	The funnel-shaped hollow at the top of the cone of a volcano.
29.	Creek	A stream of water smaller than a river and larger than a brook.
30.	Cultivated Land	Land plowed and planted to crops.
31.	Dam	A natural or artificial structure which impedes the flow of a stream causing the water to form a lake or pool.
32.	Delta	A mass of mud and silt deposited by a stream in the relatively quiet water at its mouth.
33.	Desert	A land area having very little rainfall.
34.	Dike	A bank of earth or other material constructed to prevent water from flooding an area.
35.	Erosion	The wearing away of the land surface by the action of running water, wind, or moving ice.
36.	Farm	A tract of land devoted to agriculture, such as growing crops or raising animals, or both.
37.	Field	Cleared land; a tract, often fenced, used for tillage or pasture.
38.	Foothills	Hills which lie at the foot of higher hills or mountains.
39.	Forest	A relatively dense and extensive stand of trees.
40.	Gap	A narrow valley through a range of hills or mountains.
41.	Glacier	A mass of ice which flows downslope from an area of snow accumulation, and does not disappear in summer.
42.	Gorge	A deep, narrow valley with steep walls.
43.	Gulf	A large arm of the sea extending into the land.
44.	Gully	A channel worn in the land by running water, especially during heavy rains.
45.	Harbor	A sheltered area of water used for docking or anchoring ships.

46.	Highway	An improved road, important for automobile and truck transportation.
47.	Hill	A limited area of land projecting well above the surrounding surface of the earth.
48.	Horizon	The line bounding the observer's view of the earth, where earth and sky appear to meet.
49.	Inlet	A small opening into the coast or the bank of a lake or river.
50.	Island	An area of land surrounded by water and smaller than a continent.
51.	Isthmus	A narrow strip of land joining two large land masses, or joining a peninsula to the mainland.
52.	Knoll	A small rounded hill or mound.
53.	Lake	An inland body of water of considerable size, generally larger than a pond.
54.	Levee	The bank of a river which has been built up by the deposition of silt from an overflow of a river. An artificial levee is a structure built on top of a natural levee to prevent the river from overflowing.
55.	Lock	A compartment in a canal with a watertight gate at each end. Locks are used to raise or lower boats from one level of water to another.
56.	Marsh	A tract of soft, wet land, usually low-lying and partly or completely under water.
57.	Meadow	A field of grass, or a small area of natural grassland.
58.	Mesa	An isolated, steep-sided hill topped with a relatively flat surface, commonly found in the dry areas of western United States.
59.	Mine	A pit, tunnel, or shaft dug into the earth for the purpose of extracting minerals.
60.	Mountain	A mass of land projecting well above its surroundings, whose sides slope down from a restricted summit area. It is higher above the surrounding surface than is a hill.
61.	Mountain Range	An arrangement, usually somewhat linear, of many mountain peaks, ridges, and their intervening valleys.
62.	Ocean	The mass of salt water that surrounds the continents.
63.	Pass	A high gap that offers passage across a mountain range.
64.	Pasture	Land used for grazing livestock.
65.	Peak	The top of a mountain or hill, usually somewhat pointed.

66.	Peninsula	An area of land which projects out from a larger land mass and is almost surrounded by water.
67.	Piedmont	The name often applied to that region which extends along the foot of a range of hills or mountains.
68.	Plain	A large, rather flat land surface, generally lying near sea level.
69.	Plateau	An extensive level, or mainly level, area of elevated land.
70.	Point	A pointed piece of land jutting out into a stream or body of water.
71.	Pond	A small, standing body of water.
72.	Port	A place where ships may dock or anchor, and which has facilities for loading and unloading cargo and passengers.
73.	Prairies	Large areas of level or rolling grasslands with few or no trees; common to to central North America.
74.	Quarry	An open excacation in the earth generally for the purpose of obtaining rock material.
75.	Railroad	A roadbed supporting steel rails upon which rides steam, electric or diesel-powered trains.
76.	Ranch	A track of land used for the grazing and rearing of domesticated animals such as cattle, horses, and sheep.
77.	Rapids	The part of a stream with swiftly rushing water caused by rocky obstructions or a sudden steepening of slope.
78.	Ravine	An elongated depression excavated by running water; generally larger than a gully, but smaller than a valley.
79.	Reservoir	An area of stored water, usually made by damming a stream.
80.	Ridge	An elongated elevation of land. Often refers to the top line of a range of hills or mountains.
81.	River	A large stream.
82.	River Basin	The area drained by a river and all its tributaries.
83.	River Mouth	The lower end of a river where it flows into another river or a body of water.
84.	Sand Bar	A ridge of sand built up by currents in a river or by waves and currents along a coast.
85.	Sand Dune	Ridge of sand piled up by the wind.

86.	Sea	A. One of the divisions of an ocean. B. A large expanse of inland salt water. C. A general term meaning the water of the oceans.
87.	Sea Level	The average level of the surface of the ocean.
88.	Shoreline	The land edge of a body of water.
89.	Snowline	The lower limits of permanent snow on a mountain slope. In the polar latitudes this line is a sea level.
90.	Sound	A long water passage between an island and the mainland.
91.	Spit	A sand bar attached to the land along a seacoast, which often projects across the mount of a bay.
92.	Spur	A ridge which extends out from a larger hill or mountain.
93.	Strait	A narrow stretch of water connecting two extensive areas of the sea.
94.	Stream	A course of naturally flowing water.
95.	Summit	The highest point of a hill or mountain.
96.	Swamp	A tract of low-lying land which is saturated with moisture.
97.	Timber Line	A boundary line on a high mountain, above which trees do not grow because of the cold temperature.
98.	Town	A center of population larger than a village and generally smaller than a city.
99.	Tributary	A stream feeding a large stream.
100.	Tunnel	Any relatively horizontal subterranean passageway.
101.	Valley	An elongated depression in the earth's surface, usually caused by stream erosion.
102.	Village	An inhabited place, composed of a cluster of houses, which is smaller than a town.
103.	Volcano	A. A vent in the earth's surface from which lava or rock debris issues. B. A hill or mountain composed of the ejected material.
104.	Waterfall	A steep or vertical fall of water, as a stream over the top of a cliff.

Appendix A

Materials for Developing Prerequisite Skills

A. Publications

The following publications contain information related to the development of skills in tactual discrimination, size discrimination, and orientation which are prerequisite to the use of the Lesson Guides for Geographical Readiness:

1. Caton, H.R. Tactual aids for reading: A collection of objects for use in developing beginning reading skills: Guidelines for teachers. Louisville, Ky.: American Printing House for the Blind, (Undated).
2. Duncan, B. Touch and tell. Louisville, Ky.: American Printing House for the Blind, 1969.
3. Franks, F.L. Maps in the classroom. Louisville, Ky.: American Printing House for the Blind, (Undated).
4. Kurzhals, I.W., & Caton, H.R. A tactual road to reading: A developmental program for young children. Louisville, Ky.: American Printing House for the Blind, (Undated).

B. Educational Aids

The following materials, produced by the American Printing House for the Blind are appropriate for developing skills in tactual and size discrimination:

1. Giant Textured Beads-Cat. No. 1-0378
2. Large Textured Block-Cat. No. 1-0382
3. Mitchell Wire Forms with Matched Planes and Volumes-Cat. No. 1-0340
4. Puzzle Form-Board Kit-Cat. No. 1-0372
5. Shape Board-Cat. No. 1-0371
6. Tactual Aids for Reading-Cat. No. 1-0374
7. Touch and Tell-Cat. No. 1-0370

Appendix B

Social Science Curricular Materials

Publications

1. Bacon, P. An easier way to teach directions. Grade Teacher, 1964, 82, 38-39, 65.
2. Bettinger, A., Gillons, C., & Parkinson, J. Course of study in science. Batavia, N.Y.: New York State School for the Blind, 1967.
3. Espenshade, E.B., & Morrison, J.L. (Eds.). Goode's world atlas (14th ed.). Chicago: Rand McNally, 1974.
4. Goetz, D. Islands of the ocean. New York: William Morrow, 1964.
5. Harris, R.M. The Rand McNally handbook of map and globe usage. (4th ed.). Chicago: Rand McNally, 1967.
6. Kendall, H.M. Glendinning, R.M., & MacFadden, C.M. Introduction to geography (4th ed.). New York: Harcourt, Brace, & World, 1967.
7. McConnell, W.R., & McGuigan, J. Geography of many lands. New York: Rand McNally, 1952.
8. Pattison, W.D., & Robbins, R. Going places series (How far: Teachers manual). Chicago: Rand McNally, 1968.
9. Pattison, W.D., Robbins, R. Going places series (Where: Teachers manual). Chicago: Rand McNally, 1968.
10. Pattison, W.D., & Robbins, R. Going places series (Which way: Teachers manual). Chicago: Rand McNally, 1968.
11. Ravielli, A. The world is round. New York: Viking Press, 1963.
12. Sequence chart of map and globe skills: Kindergarten through grade six. Los Angeles: Los Angeles City Schools, Division of Instructional Services, Curriculum Branch, 1963.
13. Trewartha, G.T., Robinson, A.H., & Hammond, E.H. Elements of geography (5th ed.). York: McGraw-Hill, 1967.
14. World Traveler. LaSalle, Ill.: Opencourt Publishers, 1974.
15. Young people's science encyclopedia. Chicago: Childrens Press, 1966.

Films

1. Barton, T.F., Johnson, L., Jones, D., & Sabaroff, R. Which way? Bloomington, Ind.: Audio-Visual Center, 1963. (Film)

2. Kohn, C.F. (Collaborator). Learning to use maps (Reading directions on maps). Chicago: Encyclopedia Britannica Education Corp., Undated. (Film)

3. Lee, J.R., & Kohn, C.F. (Advisers). Map and globe series (Learning about continents and oceans). New York: McGraw-Hill Films in collaboration with University Films, 1968. (Film)

4. Lee, J.R., & Kohn, C.F. (Advisers) Map and globe series (Learning about north and south). New York: McGraw-Hill Films in collaborations with University Films), 1968. (Film)

5. Lee, J.R., & Kohn, C.F. (Advisers). Map and globe series (Learning how to find direction). New York:McGraw-Hill Films in collaboration with University Films, 1968, (Film)

6. McGraw-Hill Films. (Producer). Looking at the earth we live on (High and low lands). New York: Author, 1952. (Film)

7. McGraw-Hill Films. (Producer). Looking at the earth we live on (Lakes and rivers). New York: Author, 1952. (Film)

8. McGraw-Hill Films. (Producer). Looking at the earth we live on (Oceans and coasts). New York: Author, 1952. (Film)

9. McGraw-Hill Films. (Producer). Looking at the earth we live on (Our land and its waters). New York: Author, 1952. (Film)

10. Mallinson, G.G. (Collaborator). Primary science (The earth). Chicago: Encyclopedia Britannica Education Corp., undated. (Film)

11. National Film Board of Canada. (Producer). Discovering life around us (A visit to a pond). Chicago: Encyclopedia Britannica Corp., undated. (Film)

12. National Film Board of Canada. (Producer). Discovering life around us (A visit to the seashore). Chicago: Encyclopedia Britannica Education Corp., undated. (Film)

13. Yasso, W. (Adviser). Earth science series (Oceans and their histories). New York: McGraw-

Hill Films in collaboration with Halas and Batchelor Animated Limited, 1972. (Film)

14. Yasso, W. (Adviser). The earth's resources (Freshwater resources). New York: McGraw-Hill in collaboration with Multi-Media Productions, 1970. (Film)

15. Yasso, W. (Adviser). The earth's resources (Ocean resources). New York: McGraw-Hill in collaboration with Multi-Media Productions, 1970. (Film)

Appendix C

Supplementary Materials

Music - Books

1. Lesson 2

   a. Pitts, L.B. The first grade book. New York: Ginn, 1949.

      Song: The Happy River

   b. Renstrom, M. Merrily we sing. Salt Lake City, Utah: Pioneer Music Press, (undated).

      Song: Big River

   c. Landeck, B. Making music your own. Morristown, N.J.: Silver Burdett, 1968.

      Song: Going Over the Sea

   d. Mursell, J.L. Music for living through the day. Morristown, N.J.: Silver Burdett, 1956.

      Songs: The Sailboat Song

      Little Tugboat

      The Big Steamer

      Ferry Boats

      The Gallant Ship

2. Lesson 4

   a. McConathy, O. Music for early childhood. Chicago: Silver Burdett, 1952.

      Songs: Digging in the Sand

      Walking in the Sand

      Throwing Seashells

   b. Wood, L. Sing a song. New York: Prentice Hall, 1960.

      Songs: At the Harbor

      The Seashell

3. Lesson 6

   a. Landeck, B. Making music your own I. Morristown, N.J.: Silver Burdett, 1968.

      Song: Down the Mountainside We Go

b. Landeck, B. Making music your own II. Morristown, N.J.: Silver Burdett, 1968.

Songs: Went Up On the Mountain

Race You Down the Mountain

c. Kenstrom, M. Musical adventures. Salt Lake City, Utah: Deseret Books Co., 1949.

Song: A singing brook

4. Lesson 9

a. Landis, B. Exploring music II. New York: Holt, Rinehart, & Winston, 1971.

Song: For the Beauty of the Earth

5. Miscellaneous Books

a. Seatter, E. Romp in rhythm. Cincinnati, O.: Wills Music Co., 1944.

b. McCall, A. This is music for today. New York: Allyn & Bacon, 1971.

c. Berg, R.C. Music for young americans. New York: American Book, 1963.

Music - Records

Rainy Day
American Recording Society (CRG)
Young Peoples Record 2-712 B

Winter Fun
American Recording Society (CRG)
Young Peoples Record 1-718 B

All About the Seasons
Vocation
A Product of Decca Records VL 3721

Little Toot
Published by G.P. Putnam's Sons
Capitol Records CWDP

Fog-Boat Story
American Recording Society (CRG)
The Children's Recording Guild 1027 A

Equipment - Maps and Globes

A. Maps and Globes

1. American Printing House for the Blind
   1839 Frankfort Avenue, P.O. Box 6085
   Louisville, Kentucky 40206

   a. 30" Floor Pedestal Globe with Base
      Cat. No. 1-0160

   b. 12" Table Model Globes with Stand
      Geo. Physical Model Globe
      Cat. No. 1-0155
      Panoramic Model Globe
      Cat. No. 1-0150

   c. Globe Mileage Scales
      Mileage Scale for 30" Globe
      Cat. No. 1-0196
      Mileage Scale for 12" Globe
      Cat. No. 1-0195

   d. Landform Models
      Cat. No. 1-0332

   e. Dissected Wooden Relief Maps
      1) Africa - Cat. No. 1-0102
      2) Asia - Cat. No. 1-0103
      3) Australia and the Philippines - Cat. No. 1-0104
      4) Europe - Cat. No. 1-0105
      5) North America - Cat. No. 1-0106
      6) South America - Cat. No. 1-0107
      7) United States - Cat. No. 1-0108

2. Teaching Aids. A division of A Daigger and Co.
   159 West Kinzie Street
   Chicago, Illinois 60610

   a. Physiographic Globe No. 95

3. The Learning Center. Elementary Department
   Princeton, New Jersey

   a. Contour Mapping
      Classroom Set BK 170

B. Sand and Water Tables

1. Creative Playthings
   Princeton, New Jersey 08540

   a. Wood Sand Table
      NP 172

b. Play Puddle with Sand
NP 74

c. Sand and Water Play Table
NP 540

2. Playground Corporation of America
29-16 - 40th Avenue
Long Island City, New York 11101

a. Martian Canals for Sand and Water Play By Handicapped Children

3. J. A. Preston Corporation
71 - 5th Avenue
New York, New York 10003

a. Martian Canals Rectangle
P.E.C. 4815 A

4. Macalaster Scientific Company
Route 111 and Everett Turnpike
Nashua, New Hampshire 03060

a. Stream Table Student Kit
No. 32920

C. Climbing Equipment

1. Creative Playthings
Princeton, New Jersey 08540

a. Tunnel Bridge NP005

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